REMARKS

Claims 1-66 are pending in the present application. The Examiner has objected to the drawings and has rejected claims 1-66.

I. OBJECTION TO THE DRAWINGS

The Examiner objected to the drawings as being informal. Applicants respectfully submit herewith a formal set of drawings. It is therefore respectfully requested that the objection be withdrawn with respect to the drawings.

II. NOTED INFORMALITIES IN THE CLAIMS

The Examiner objected to claim 27 for a noted informality, in particular, a spelling error. Claim 27 recites "te". Applicants have replaced "te" with --the--. It is therefore respectfully requested that the objection be withdrawn with respect to claim 27.

Applicants have noted a few minor informalities. For example, Applicants inadvertently repeated the word "the" in claims 48 and 64. Thus, claims 48 and 64 recite "the the". Applicants have deleted the second occurrence of "the" in "the the". Furthermore, Applicants did not end claim 55 with an ending punctuation. Applicants have inserted a --.-- after the last word "frequency" in claim 55.

In claim 46, in one instance, respectively, the phrase "second polyphase" and the phrase "first polyphase" inadvertently left out the word "filter". Applicants have amended the claim accordingly to respectively recite "second polyphase filter" and "first polyphase filter". Furthermore, claim 46 recites an output including a non-inverted output and an inverted *input*. As is clear from the rest of claim 46, Applicants intended that the output include a non-inverted output and an inverted *output*. Applicants have amended the claim accordingly.

III. REJECTION UNDER 35 U.S.C. § 102(e) WITH RESPECT TO CLAIMS 20-30 AND 54-66

Claims 20-30 and 54-66 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,236,847 B1 ("Stikvoort"). Applicants respectfully traverse the rejection.

A. Claims 20-25

Stikvoort does not describe each and every element set forth in claim 20. For example, Stikvoort does not describe a "notch filter" nor does Stikvoort describe a "notching means for notching a particular frequency of the input signal as a function of the phases". The Examiner states that these elements are described in FIG. 1; col. 3, line 33 to col. 4, line 31; and col. 1, lines 48 to col. 2, line 29 of Stikvoort. However, a careful review of the cited figure and the cited text of Stikvoort reveals no description of a notch filter or notching means as set forth in claim 20. In fact, the specification of Stikvoort makes no mention of a notch filter or notching means. Applicants respectfully submit that FIG. 1 does not illustrate a notch filter or notching means. Applicants respectfully draw the attention of the Examiner to FIGS. 2 and 3 which show the frequency response of the receiver 2 at different stages along a signal path. It is very clear that, just before the demodulator 21, the composite response of the receiver 2 is that of a band pass filter as illustrated in graph 36 of FIG. 2 and graph 46 of FIG. 3. In many respects, a band pass filter teaches away from a notch filter or notching means. For at least the above reasons, Stikvoort does not anticipate claim 20 or its dependent claims (i.e., claims 21-25).

Furthermore, Applicants respectfully submit that Stikvoort does not describe each and every element as set forth in claims 21-25. For example, claim 23 recites that "the notching means" comprises "means for rejecting the quadrature signal at the particular frequency". Since Stikvoort does not describe notching means as discussed above, Stikvoort certainly does not describe notching means comprising means for rejecting a quadrature signal at a particular frequency. In another example, claims 24 and 25 recite "an odd harmonic" and "a third harmonic", respectively, of "the input signal". However, Stikvoort does not describe at least these elements. In fact, Stikvoort makes no mention of odd harmonics or third harmonics of any signals.

It is therefore respectfully requested that the rejection under 35 U.S.C. § 102(e) be withdrawn with respect to claims 20-25.

B. Claims 26-30

Stikvoort does not describe each and every element set forth in claim 26. For example, Stikvoort does not describe a "a method of notching a particular frequency of a signal" nor does Stikvoort describe "notching the particular frequency of the input signal as a function of the phases". The Examiner states that these elements are described in FIG. 1; col. 3, line 33 to col.

4, line 31; and col. 1, lines 48 to col. 2, line 29 of Stikvoort. However, a careful review of the cited figure and the cited text of Stikvoort reveals no description of these elements as set forth in claim 26. Applicants respectfully submit that FIG. 1 does not illustrate a method of notching a particular frequency of a signal nor notching the particular frequency of the input signal as a function of the phases. Applicants respectfully draw the attention of the Examiner to FIGS. 2 and 3 which show the frequency response of the receiver 2 at different stages along a signal path. It is very clear that, just before the demodulator 21, the composite response of the receiver 2 is that of a band pass filter as illustrated in graph 36 of FIG. 2 and graph 46 of FIG. 3. In many respects, band pass filtering teaches away from notching. For at least the above reasons, Stikvoort does not anticipate claim 26 or its dependent claims (i.e., claims 27-30).

Furthermore, Applicants respectfully submit that Stikvoort does not describe each and every element as set forth in claims 27-30. For example, claim 27 recites that "notching" comprises "rejecting the quadrature signal at the particular frequency". Since Stikvoort does not describe notching as discussed above, Stikvoort certainly does not describe notching comprising rejecting a quadrature signal at a particular frequency. In another example, claims 29 and 30 recite "an odd harmonic" and "a third harmonic", respectively, of "the input signal". However, Stikvoort does not describe at least these elements. In fact, Stikvoort makes no mention of odd harmonics or third harmonics of any signals.

It is therefore respectfully requested that the rejection under 35 U.S.C. § 102(e) be withdrawn with respect to claims 26-30.

C. Claims 54-58

Stikvoort does not describe each and every element set forth in claim 54. For example, Stikvoort does not describe "filtering means for notching a particular frequency of the mixed signal using a polyphase structure". The Examiner states that these elements are described in FIG. 1; col. 3, line 33 to col. 4, line 31; and col. 1, lines 48 to col. 2, line 29 of Stikvoort. However, a careful review of the cited figure and the cited text of Stikvoort reveals no description of these elements as set forth in claim 54. Applicants respectfully submit that FIG. 1 does not illustrate filtering means for notching a particular frequency of a mixed signal using a polyphase structure. Applicants respectfully draw the attention of the Examiner to FIGS. 2 and 3 which show the frequency response of the receiver 2 at different stages along a signal path. It is very clear that, just before the demodulator 21, the composite response of the receiver 2 is that of

a band pass filter as illustrated in graph 36 of FIG. 2 and graph 46 of FIG. 3. In many respects, band pass filtering teaches away from notching. For at least the above reasons, Stikvoort does not anticipate claim 54 or its dependent claims (i.e., claims 55-58).

Furthermore, Applicants respectfully submit that Stikvoort does not describe each and every element as set forth in claims 55-58. For example, claim 56 recites "a second filtering means for notching a second frequency of the mixed signal using a second polyphase structure." Since Stikvoort does not describe notching, Stikvoort does not describe a second filtering means for notching.

It is therefore respectfully requested that the rejection under 35 U.S.C. § 102(e) be withdrawn with respect to claims 54-58.

D. Claims 59-61

Stikvoort does not describe each and every element set forth in claim 59. For example, Stikvoort does not describe "first filtering means for notching a first frequency of a signal using a first polyphase structure" and "second filtering means for notching a second frequency of the signal using a second polyphase structure". The Examiner states that these elements are described in FIG. 1; col. 3, lines 7-56; and col. 4, lines 32-54 of Stikvoort. However, a careful review of the cited figure and the cited text of Stikvoort reveals no description of these elements as set forth in claim 59. Applicants respectfully submit that FIG. 1 does not illustrate any filtering means for notching. Applicants respectfully draw the attention of the Examiner to FIGS. 2 and 3 which show the frequency response of the receiver 2 at different stages along a signal path. It is very clear that, just before the demodulator 21, the composite response of the receiver 2 is that of a band pass filter as illustrated in graph 36 of FIG. 2 and graph 46 of FIG. 3. In many respects, a band pass filter teaches away from any means for notching. Furthermore, the polyphase filters 16 and 19 do not participate in any notching. See, e.g., col. 4, lines 43 and 44 ("[t]he polyphase filter 16 is in this case a polyphase high-pass filter"); and col. 4, lines 51 and 52 ("the polyphase filter 19 is arranged as a low-pass filter") of Stikvoort. For at least the above reasons, Stikvoort does not anticipate claim 59 or its dependent claims (i.e., claims 60 and 61).

It is therefore respectfully requested that the rejection under 35 U.S.C. § 102(e) be withdrawn with respect to claims 59-61.

E. Claims 62-66

Stikvoort does not describe each and every element set forth in claim 62. For example,

Stikvoort does not describe "notching a particular frequency of the signal using a polyphase structure". The Examiner states that these elements are described in FIG. 1 and col. 3, lines 6-51 of Stikvoort. However, a careful review of the cited figure and the cited text of Stikvoort reveals no description of these elements as set forth in claim 62. Applicants respectfully submit that FIG. 1 does not illustrate any notching. Applicants respectfully draw the attention of the Examiner to FIGS. 2 and 3 which show the frequency response of the receiver 2 at different stages along a signal path. It is very clear that, just before the demodulator 21, the composite response of the receiver 2 is that of a band pass filter as illustrated in graph 36 of FIG. 2 and graph 46 of FIG. 3. In many respects, a band pass filter teaches away from any means for notching. Furthermore, the polyphase filters 16 and 19 do not participate in any notching. See, e.g., col. 4, lines 43 and 44 ("[t]he polyphase filter 16 is in this case a polyphase high-pass filter"); and col. 4, lines 51 and 52 ("the polyphase filter 19 is arranged as a low-pass filter") of Stikvoort. For at least the above reasons, Stikvoort does not anticipate claim 62 or its dependent claims (i.e., claims 63-66).

It is therefore respectfully requested that the rejection under 35 U.S.C. § 102(e) be withdrawn with respect to claims 62-66.

IV. REJECTION UNDER 35 U.S.C. § 103(a) WITH RESPECT TO CLAIMS 1-19 AND 31-53

Claims 1-19 and 31-53 stand rejected under 35 U.S.C. § 103(a) as being obvious over Stikvoort in view of U.S. Patent No. 5,974,306 ("Hornak"). Applicants respectfully traverse the rejection.

A. Claims 1-19

Stikvoort and Hornak cannot be properly combined to teach or suggest each and every element as set forth in claims 1-19. For example, independent claims 1 and 12 both recite a "notch filter". As discussed above, Stikvoort does not teach or suggest a notch filter. Stikvoort teaches a receiver 2 with a first polyphase filter 16 and a second polyphase filter 19. However, as is clear from graph 36 in FIG. 2 and graph 46 in FIG. 3, the composite filter of the first polyphase filter 16 and the second polyphase filter 19 is a band pass filter. See also, e.g., col. 4, lines 58-60 of Stikvoort ("[i]n practical implementations, the polyphase filters will show a band pass character"). In many respects, a band pass filter is the opposite of a notch filter. Thus,

Stikvoort teaches away from the claimed invention. M.P.E.P. § 2145(X)(D), under the heading "Arguing Improper Rationales for Combining References", states that "[a] prior art reference that 'teaches away' from the *claimed invention* is a *significant factor* to be considered in determining obviousness". M.P.E.P. § 2145(X)(D)(1) (emphasis added).

Furthermore, the Examiner cannot maintain an obviousness rejection by combining Stikvoort with a prior art reference that teaches a notch filter. M.P.E.P. § 2145(X)(D)(2) clearly states that "[i]t is improper to combine references where the references teach away from their combination." Thus, Stikvoort would teach away from any prior art reference that teaches a notch filter. Therefore, even assuming that Hornak teaches a notch filter in this context (which the Examiner has not alleged and Applicants have not asserted), Stikvoort cannot be properly combined with Hornak because Stikvoort teaches away from Hornak.

For at least the above reasons, an obviousness rejection based on the combination of Stikvoort and Hornak cannot be maintained. It is therefore respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claims 1 and 12 and their corresponding dependent claims (i.e., claims 2-11 and claims 13-19, respectively).

B. Claims 31-53

M.P.E.P. § 2143.01 states that "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification". See also M.P.E.P. § 2145(X)(D).

The modifications proposed by the Examiner would render Stikvoort unsatisfactory for its intended purpose. With respect to claims 31-53, the Examiner has proposed modifying receiver 2 described in Stikvoort by inserting a polarity invert PII or PIQ described in Hornak "at either the signal input, or the output of the first stage mixer". Office Action at pages 8 and 10. As explained with the aid of FIG. 2 of Hornak, polarity inverter PII receives a first pulse train I*, I, I*, I at first input and a second pulse train I, I*,I, I* at a second input. The polarity inverter PII (part of a *time-share* mixer system) outputs a first pulse train of only I's at a first output and a second pulse train of only I*'s at a second output. Thus, the polarity inverter PII takes a signal with two components (e.g., I, I*) interleaved and separates the interleaved signal into two separate signals (e.g., an I signal and an I* signal). Stikvoort neither teaches the principle of time-share mixers nor does Stikvoort teach the processing of an interleaved signal. As is evident from FIG. 5, the mixer of Stikvoort generates four *separate*, *non-interleaved* signals (i.e., a Q

signal, a -Q signal, an I signal and a -I signal) at four different and separate outputs. The rest of the receiver components of Stikvoort operate on the principle that there are four non-interleaved signals propagating through the receiver. If the polarity inverter PII were connected to the output of the mixer as suggested by the Examiner and two of the inputs were, for example, an I signal and an -I signal, then the outputs of the polarity inverter PII would be two interleaved signals (e.g., an I,-I* signal) on two different outputs. Since the rest of the receiver taught by Stikvoort is not designed to handle interleaved signals, the receiver of Stikvoort would be unable to operate for its intended purpose and would be unable to properly process incoming signals. Clearly, the principle of operation of the Stikvoort receiver would have to be changed. However, this too is generally prohibited by the M.P.E.P. M.P.E.P. § 2143.01 states that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." See also M.P.E.P. § 2145(X)(D). Thus, Stikvoort cannot be properly combined with Hornak and the teachings of the proposed combination of Stikvoort and Hornak do not render claims 31-53 *prima facie* obvious.

For at least the above reasons, the obviousness rejection based on Stikvoort in view of Hornak cannot be maintained. It is therefore respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 31-53.

C. Arguments Made For Claims 31-53 Are Also Applicable To Claims 1-19

The arguments made with respect to claims 31-53 are also respectfully made with respect to claims 1-19 in further traversing the obviousness rejection based on Stikvoort in view of Hornak. Applicants respectfully submit these additional arguments in requesting that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 1-19.

V. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-66 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

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Respectfully submitted,

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